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IS 13412-1 (1992): Laminated core, package for transformers and inductors used in telecommunication and electronic equipment, Part 1: Dimensions [LITD 5: Semiconductor and Other Electronic Components and Devices]



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भारतीय मानक

दूरसंचार और इलेक्ट्रॉनी उपस्कर में उपयोग के लिए
ट्रान्सफार्मरों एवं प्रेरकों के परतदार क्रोड पैकेज

भाग 1 आयाम

Indian Standard

LAMINATED CORE PACKAGES FOR
TRANSFORMERS AND INDUCTORS USED
IN TELECOMMUNICATION AND
ELECTRONIC EQUIPMENT

PART 1 DIMENSIONS

UDC 621.314.235 : 042.1 : 006.78

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Magnetic Component and Ferrite Materials Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

The objective of this Indian Standard is to standardize the dimensions of laminated core packages for transformers and inductors for use in telecommunication and electronic equipment.

The laminated cores are normally constructed from laminations made from materials of the composition corresponding to the designation C 22, E 1 E 4 or F1 [see Table 1 of IS 11794 (Part 1) : 1986].

This standard (Part 1) is based without any technical change on IEC Pub 1021-1 (1990), 'Laminated core packages for transformers and inductors used in telecommunication and electronic equipment,' issued by International Electrotechnical Commission (IEC).

The other part of this series of standards is as follows:

Part 2 Electrical characteristics (*under preparation*).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of specified value in this standard.

AMENDMENT NO. 1 APRIL 1998
TO
IS 13412 (PART 1) : 1992 LAMINATED CORE
PACKAGES FOR TRANSFORMERS AND INDUCTORS
USED IN TELECOMMUNICATION AND ELECTRONIC
EQUIPMENT

PART 1 DIMENSIONS

(*First cover page and page 1, Title*) — Substitute the following for the existing title:

'SPECIFICATION FOR LAMINATED CORE PACKAGES
FOR TRANSFORMERS AND INDUCTORS USED IN
TELECOMMUNICATION AND ELECTRONIC
EQUIPMENT

PART 1 DIMENSIONS'

(LTD 13)

Indian Standard

LAMINATED CORE PACKAGES FOR TRANSFORMERS AND INDUCTORS USED IN TELECOMMUNICATION AND ELECTRONIC EQUIPMENT

PART 1 DIMENSIONS**1 SCOPE**

This standard (Part 1) specifies the dimensions, with their associated tolerances of a range of laminated core packages using YEE 2 laminations, both in their standard configuration and for assemblies using two larger E parts.

NOTE — Laminated cores are normally constructed from laminations made from material of the composition corresponding to the designation C 22, E 1, E 3, E 4 and F 1 (see Table 1 of IS 11794 (Part 1) : 1986].

2 REFERENCES

2.1 The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 DEFINITIONS**3.1 General Terms**

For definitions of the general terms used reference should be made to IS 1885 (Part 31) : 1971.

For the purpose of this standard, the following definition applies.

3.2 Laminated Core Package

A magnetic core in two parts, each made up of laminations suitably jointed together for assembly within a coil.

NOTE — When required, an air gap may be introduced, preferably in the centre limb of one part.

4 LAMINATIONS**4.1 Lamination Shape**

For the purpose of this standard, the laminations shall conform to the dimensions of type YEE 2 laminations specified in IS 11794 (Part 2/Sec 1) : 1986. However, in addition to the standard configuration using the combination of larger and smaller E laminations to form a complete magnetic circuit as shown in

Fig 1, the range of specified cores also includes provision for combining pairs of the larger E laminations (see Fig 2).

4.2 Nominal Lamination Thickness

The thickness of lamination used in laminated cores shall be one of the following values:

0.10 mm	0.20 mm	0.30 mm
0.15 mm	0.27 mm	0.35 mm

NOTE — These are preferred values from Table 2 of IS 11794 (Part 1) : 1986.

5 CORE SIZE DESIGNATION

The core designation shall consist of the lamination designation YEE 2-2 to 2-12 from IS 11794 (Part 2/Sec 1) : 1986 together with suffix letters as follows:

YEE 2-2 to 2-12 d k

letter to identify a laminated core package

letter to designate the height of the core, d indicating a square stack

or

YEE 2-2 to 2-12 d k L

letter to identify a transformer core mating pairs of to larger part of a lamination

letter to identify a laminated core package

letter to designate the height of the core, d indicating a square stack

6 CORE DIMENSIONS AND TOLERANCES

The dimensions and tolerances of core packages shall be as given in Tables 1, 2 and 3.

NOTES

1 In each case a centre limb air gap may be introduced by grinding one or both parts of the core or by tooling in the gap at the lamination stage.

2 All the listed dimensions in this standard are in millimetres.

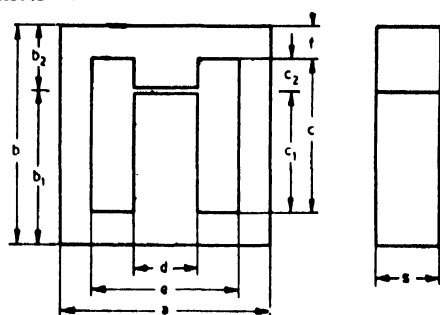


FIG. 1 YEE 2 LAMINATIONS: STANDARD CONFIGURATION

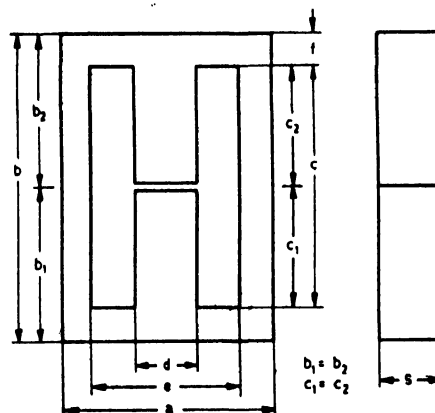


FIG. 2 YEE LAMINATIONS: USING TWO LARGER E PARTS

Table 1 Dimensions of Laminated Cores: Standard Configuration
(Clause 6)

Core Designation	Reference Letter and Tolerance Code (see Note 1)											
	a	b	b ₁	b ₂	c		c ₁	c ₂	d	e	f	s
	$\pm \frac{1}{2}$ IT 13	$\pm \frac{1}{2}$ IT 14			$\pm \frac{1}{2}$ IT 13	$\pm \frac{1}{2}$ IT 14			0 ± 11	$+ 0 \pm 11$		(see Note 2)
YEE 2-2 d k	8	8	5.5	2.5	5.6		4.3	1.3	2.4	5.6	1.2	2.4
YEE 2-3 d k	10	10	7	3	7		5.5	1.5	3	7	1.5	3
YEE 2-4 d k	12.6	12.6	8.6	4	8.8		6.7	2.1	3.8	8.8	1.9	3.8
YEE 2-5 d k	16	16	11	5	11.2		8.6	2.6	4.8	11.2	2.4	4.8
YEE 2-6 d k	20	20	14	6		14	11	3	6	14	3	6
YEE 2-8 d k	25	25	17	8		17.4	13.2	4.2	7.6	17.2	3.8	7.6
YEE 2-10 d k	32	32	22	10		22.4	17.2	5.2	9.6	22.4	4.8	9.6
YEE 2-12 d k	40	40	28	12		28	22	6	12	28	6	12

NOTES

1 See Table 4 of IS 11794 (Part 1) : 1986.

2 For tolerances of 's' see Table 3 of this standard.

3 All dimensions are in millimetres.

Table 2 Dimensions of Laminated Cores Formed by a Pair of Large E Core Parts
(Clause 6)

Core Designation	Reference Letter and Tolerance Code (see Note 1)										
	a	b	b ₁	b ₂	c	c ₁	c ₂	d	e	f	s
	$\pm \frac{1}{2}$ IT 13	$\pm \frac{1}{2}$ IT 14			$\pm \frac{1}{2}$ IT 14			$\underline{0}$ IT 11	$^+ \underline{0}$ IT 11		(see Note 2)
YEE 2-6 d K L	20	28	14	14	22	11	11	6	14	3	6
YEE 2-8 d K L	25	34	17	17	26.4	13.2	13.2	7.6	17.4	3.8	7.6
YEE 2-10 d K L	32	44	22	22	34.4	17.2	17.2	9.6	22.4	4.8	9.6
YEE 2-12 d K L	40	56	28	28	44	22	22	12	28	6	12

NOTES

1 See Table 4 of IS 11794 (Part 1) : 1986-

2 For tolerance of 's' see Table 3 of this standard.

3 All dimensions are in millimetres.

Table 3 Tolerance Codes for Laminated Core Package Height 'S'
(Clause 6)

	Lamination Thickness					
	0.35	0.3	0.27	0.2	0.15	0.10
Tolerance code	$\underline{0}$ IT 15	$\underline{0}$ IT 15	$\underline{0}$ IT 15	$\underline{0}$ IT 14	$\underline{0}$ IT 14	$\underline{0}$ IT 13

ANNEX A

(Clause 2.1)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
1885 (Part 31) : 1971	Electrotechnical vocabulary Part 31 Magnetism	11794 (Part 2/ Sec 1) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations Sec 1 Lamination type YEI-1
11794 (Part 1) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 1 General requirements and tests		

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